#12 Response KT 7/18/03

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)
Masaru WATANABE et al.	)
Serial No. 09/868,766	) Examiner: D. Valencia
Filed: June 21, 2001	) Group Art Unit: 2874
For: OPTICAL ATTENUATOR	) July 14, 2003

RESPONSE TO OFFICE ACTION OF MARCH 12, 2003

Assistant Commissioner of Patents
Washington, D.C. 20231

Dear Sir:

A Petition for Extension of Time is enclosed.

In response to the office action of March 12, 2003, reconsideration of claims 17-19 in view of the rejection under 35 U.S.C. 102(e) based upon U.S. Patent 5,841,926 (Takeuchi et al.) is requested inasmuch as Takeuchi et al. fails to teach or suggest the particular combination defined in the rejected claims. In particular claims 17-19 are deemed allowable for reciting a combination forming an optical attenuator in the form of a single mode optical fiber for receiving an optical signal, attenuating the optical signal and outputting the attenuated optical signal, said optical attenuator comprising a core containing a dopant which attenuates the optical signal more when its wavelength is shorter, said dopant being contained only in a dopant area limited to a centermost portion of said core, said core comprising said centermost

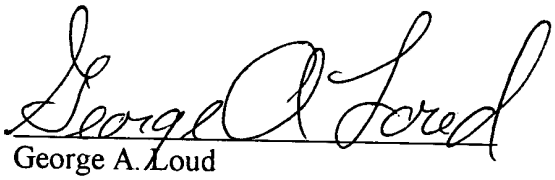
portion and a peripheral portion contiguous with said centermost portion and free of dopant, said core having a refractive index at said centermost portion greater than that of said peripheral portion, said optical fiber having a mode field for single mode transmission of the optical signal inclusive of said centermost and peripheral portions of said core. As noted in the specification on pages 17 and 18 and in Fig. 8, this particular structure wherein the attenuator has greater attenuation in the lower frequency band (1.3 μm) than the higher frequency band (1.5 μm) has an increased wavelength dependency of attenuation, i.e., for small changes in frequency, there is increased variation in attenuation compared to whole core doping. This makes it possible to select desired different attenuations at corresponding different frequencies.

Contrary to the office action, Takeuchi et al. does not contain doping to attenuate the optical signal more when its wavelength is in the shorter wavelength band. At column 7, lines 60-63, Takeuchi et al. state, "The doped Co content and the doped region (in the core center part) were adjusted so that optical attenuation at both wavelengths of 1.31 μm [shorter wavelength] and 1.55 μm [longer wavelength] should be 25 dB with the fiber length of 22.4 mm." In contrast, the present invention of claims 17-19 uses a dopant, for example, samarium (Sm), which provides a greater attenuation in the 1.3 μm band than in the 1.5 μm band. Furthermore, the result of the doping of Takeuchi et al. provides decreased dependency of attenuation as shown in Fig. 4 which is contrary to the result of the structure defined in applicants' claims 17-19.

Since the optical attenuator defined in claims 17-19 has a different structure and operates to produce a different result from that disclosed by Takeuchi et al., claims 17-19 are clearly novel and patentable over the prior art and the continued rejection of claims 17-19 based upon the disclosure of Takeuchi et al. is untenable.

The application is believed to be clearly in condition for allowance and such favorable action is requested.

Respectfully submitted,



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